



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/644,261

08/20/2003

Ahmad C. Ansari

1033-T00529

7477

84326

7590

12/07/2010

AT & T LEGAL DEPARTMENT - Toler

ATTN: PATENT DOCKETING

ROOM 2A-207

ONE AT & T WAY

BEDMINISTER, NJ 07921

EXAMINER

PRABHAKHER, PRITHAM DAVID

ART UNIT

PAPER NUMBER

2622

MAIL DATE

DELIVERY MODE

12/07/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/644,261	Applicant(s) ANSARI ET AL.	
	Examiner PRITHAM PRABHAKHER	Art Unit 2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 October 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4,6,8,9,11,12,17-19,21,23,25,26,28,29,31,34-43 and 47 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4,6,8,9,11,12,17-19,21,23,25,26,28,29,31,34-43 and 47 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>01/03/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 1-4,6,8,9,11,12,17-19,21,23,25,26,28,29,31, 34-43 and 47 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, 11, 21, 23, 26, 29, 31 and 34-38 are rejected under 35

U.S.C. 103(a) as being unpatentable over Shirakawa (US Pub No.:

2003/0117501A1) in view of Smith et al. (US Patent No.: 5898459).

*In regard to **Claim 1**, Shirakawa discloses an image capture system (**Abstract; Figures 2 and 8-9**), comprising:*

*a first image sensor lens module comprising a first lens integrated with a first sensor (Lens 4a and sensor 2a, **Figures 2 and 8**), the*

*first image sensor lens module operable to generate first raw image data (The first image sensor lens module generates a first raw image data of the background etc., **Figures 2 and 8; Paragraphs 0030-0032; 0046-0051**);*

*a second image sensor lens module comprising a second lens integrated with a second sensor, the second image sensor lens module operable to generate second raw image data (Lens 4b and Sensor 2b, **Figures 2 and 8; Paragraphs 0046-0051**);*

*a shared image processing engine integrated into a single electronic device with the first image sensor lens module and the second image sensor lens module and coupled to the first image sensor lens module and to the second image sensor lens module, wherein the shared image processing engine is operable to perform an image processing operation to transform raw image data into a viewable image (Image processor 103 is shared by both the first and second image sensor lens modules. A shared image processing is performed to transform the raw image data into a viewable image to be displayed on the display 62, **Paragraphs 0046-0051; Figure 8**); and*

*a selector integrated into the single electronic device (Selector 5, **Figures 2 and 8**), wherein while the single electronic device is on and the first image sensor lens module is generating the first raw image data and the second image sensor lens module is generating the second raw image data, the selector selects image data from at least one of the first raw image data and the second raw image data to be routed to the shared image processing engine to be transformed into the viewable image (The selector 5 selects either one of the first camera/sensor 10a/2a or second camera/sensor 10b/2b to route the selected one of the first and second raw data to the image processor 103, **Figures 2 and 8; Paragraphs 0046-0051**).*

*Shirakawa does not explicitly disclose that the selector selects the image data when motion in the selected image data stabilizes. Smith et al. disclose a multi-camera programmable pan-and-tilt apparatus comprising a base and a camera mechanism having a first camera and a second camera, with the second camera including a zoom mechanism for varying the zoom magnification of the second camera. The apparatus further has a pan-and-tilt mechanism for moving the cameras with respect to the base, and a video switch receiving the video outputs of the cameras and selecting one for view. The first camera is viewed while the camera mechanism is moved from one scene to another and the second camera is viewed while the camera mechanism is not moving and is paused for observation of a scene. A programmable controller controls the camera mechanism and the pan-and-tilt mechanism, and, while the camera mechanism is moving from one scene to another and the output of the first camera is being viewed, causes the zoom magnification and focus of the second camera to become set to the desired zoom magnification and focus for the next scene position. The second camera may also have a motion sensor alarm for detecting viewed motion while the camera mechanism is paused at a given scene, and the detection of such motion can cause the camera mechanism to pause an additional time at the given scene and to alert the operator. A microphone may detect motion noise of the pan and tilt and cause the viewed video to switch from camera to camera in response to the motion noise (**Abstract of Smith et al.**). Smith et al. disclose having a delay that allows time for the camera mechanism to stabilize after motion before switching the viewed video (**Column 9, Lines 11-28 of Smith et al.**). It would have been obvious and well-*

known to one of ordinary skill in the art at the time of the invention to enable the teachings of Shirakawa to select the image data from at least the first and second image data after motion in the selected image data stabilizes as taught by Smith et al., because this allows for the viewed image to be clear and undistorted.

*Regarding **Claim 3**, Shirakawa and Smith et al. disclose the image capture system of claim 1, further comprising:*

*a third image sensor lens module operable to generate third raw image data, wherein the third image sensor lens module is integrated into the single electronic device and coupled to the shared image processing engine, and wherein while the single electronic device is on, the first image sensor lens module is generating the first raw image data, the second image sensor lens module is generating the second raw image data, the third image sensor lens module is generating the third raw image data, the selector (5) causes only one of the first raw image data, the second raw image data, and the third raw image data to be routed to the shared image processing engine to be transformed into the viewable image (**Paragraph 0051 of Shirakawa**).*

*Regarding **Claim 35**, Shirakawa and Smith et al. disclose the image capture system of claim 1, wherein the first image sensor lens module does not include a computer readable memory (**Figures 2 and 8 of Shirakawa** show no memory present on the lens modules).*

*In regard to **Claim 36**, Shirakawa and Smith et al. disclose the image capture system of claim 1, wherein there is no optical component spatially situated between the first lens and the first sensor (**Figures 2 and 8 of Shirakawa**).*

*With regard to **Claim 11**, Shirakawa discloses an image capturing system (**Abstract; Figures 2 and 8-9**) comprising:*

*a first image module selectively coupled to a processing engine by way of a selector (5) (Lens 4a and sensor 2a, **Figures 2 and 8**), the*

*first image module operable to capture a first raw image (The first image sensor lens module generates a first raw image data of the background etc., **Figures 2 and 8; Paragraphs 0030-0032; 0046-0051**);*

*a second image module selectively coupled to the processing engine by way of the selector, the second image module operable to capture a second raw image (Lens 4b and Sensor 2b, **Figures 2 and 8; Paragraphs 0046-0051**);*

*the selector (Selector 5, **Figures 2 and 8**) operable to determine a selected image module from the first image module and the second image module and to selectively cause a raw image captured by the selected image module to be sent to the processing engine (The selector 5 selects either one of the first camera/sensor 10a/2a or second camera/sensor 10b/2b to route the selected one of the first and second raw data to the image processor 103, **Figures 2 and 8; Paragraphs 0046-0051**); and*

the processing engine operable to perform an image processing operation on the raw image captured by the selected image module, wherein the processing engine is not configured to perform the image processing operation on the first raw image and the second raw image simultaneously (Image processor 103 is shared by both the first and second image sensor lens modules. A shared image processing is performed to transform the raw image data into a viewable image to be displayed on the display 62,
Paragraphs 0046-0051; Figure 8. *The user selects which image is sent to the processing engine. Therefore, in accordance with the user selection, the processing does not necessarily have to be done simultaneously. If the user does not send the second data for instance, it will not be processed simultaneously with the first).*

However, Shirakawa does not explicitly disclose that the selected image module is to be sent to the processing engine when motion captured by the selected image module stabilizes. Smith et al. disclose a multi-camera programmable pan-and-tilt apparatus comprising a base and a camera mechanism having a first camera and a second camera, with the second camera including a zoom mechanism for varying the zoom magnification of the second camera. The apparatus further has a pan-and-tilt mechanism for moving the cameras with respect to the base, and a video switch receiving the video outputs of the cameras and selecting one for view. The first camera is viewed while the camera mechanism is moved from one scene to another and the second camera is viewed while the camera mechanism is not moving and is paused for observation of a scene. A programmable controller controls the camera mechanism and

Art Unit: 2622

*the pan-and-tilt mechanism, and, while the camera mechanism is moving from one scene to another and the output of the first camera is being viewed, causes the zoom magnification and focus of the second camera to become set to the desired zoom magnification and focus for the next scene position. The second camera may also have a motion sensor alarm for detecting viewed motion while the camera mechanism is paused at a given scene, and the detection of such motion can cause the camera mechanism to pause an additional time at the given scene and to alert the operator. A microphone may detect motion noise of the pan and tilt and cause the viewed video to switch from camera to camera in response to the motion noise (**Abstract of Smith et al.**). Smith et al. disclose having a delay that allows time for the camera mechanism to stabilize after motion before switching the viewed video (**Column 9, Lines 11-28 of Smith et al.**). It would have been obvious and well-known to one of ordinary skill in the art at the time of the invention to enable the teachings of Shirakawa to select the image data from at least the first and second image data after motion in the selected image data stabilizes as taught by Smith et al., because this allows for the viewed image to be clear and undistorted.*

*With regard to **Claim 21**, Shirakawa and Smith et al. disclose the image capture system of claim 11, wherein the first raw image represents a first view of a scene and the second raw image represents a second view of the scene (The image data captured represents two different views as discussed above) and wherein at least a portion of the*

Art Unit: 2622

*first view includes a portion of the scene captured in the second view (The first image data Sa is superimposed onto the second image data Sb. The superimposed data is then sent to the microprocessor 61, **Paragraphs 0047-0048 of Shirakawa**. This reads on a portion of the first view including a portion of the scene captured in the second view).*

*Regarding **Claim 34**, Shirakawa and Smith et al. disclose the image capturing system of claim 11, wherein the first image module comprises a lens integrated with a sensor (**Figure 2 of Shirakawa**).*

*With regard to **Claim 23**, Shirakawa discloses an image capturing method (**Abstract; Figures 2 and 8-9**), comprising:*

*receiving first image information that represents a first view obtained from a first digital image sensor of a plurality of digital image sensors (The first image sensor lens module generates a first raw image data of the background etc., **Figures 2 and 8; Paragraphs 0030-0032; 0046-0051**);*

*receiving second image information that represents a second view obtained from a second digital image sensor of the plurality of digital image sensors (Lens 4b and Sensor 2b, **Figures 2 and 8; Paragraphs 0046-0051**);*

sending a set of image information representing the particular view obtained from one of the plurality of digital image sensors to a processing engine (Superimposed

Art Unit: 2622

*image data representing a single view is sent to microprocessor 61, **Paragraphs 0047-0048**); and*

*performing an image processing operation on the set of image information, wherein the processing engine is not configured to perform the image processing operation on the first image information and the second image information simultaneously (Image processor 103 is shared by both the first and second image sensor lens modules. A shared image processing is performed to transform the raw image data into a viewable image to be displayed on the display 62, **Paragraphs 0046-0051; Figure 8**. The user selects which image is sent to the processing engine.*

Therefore, in accordance with the user selection, the processing does not necessarily have to be done simultaneously. If the user does not send the second data for instance, it will not be processed simultaneously with the first).

However, Shirakawa does not disclose tracking motion in a particular view selected from the first view and the second view and selecting a set of image information when the motion in the particular view stabilizes. Smith et al. disclose a multi-camera programmable pan-and-tilt apparatus comprising a base and a camera mechanism having a first camera and a second camera, with the second camera including a zoom mechanism for varying the zoom magnification of the second camera. The apparatus further has a pan-and-tilt mechanism for moving the cameras with respect to the base, and a video switch receiving the video outputs of the cameras and selecting one for view. The first camera is viewed while the camera mechanism is

Art Unit: 2622

*moved from one scene to another and the second camera is viewed while the camera mechanism is not moving and is paused for observation of a scene. A programmable controller controls the camera mechanism and the pan-and-tilt mechanism, and, while the camera mechanism is moving from one scene to another and the output of the first camera is being viewed, causes the zoom magnification and focus of the second camera to become set to the desired zoom magnification and focus for the next scene position. The second camera may also have a motion sensor alarm for detecting viewed motion while the camera mechanism is paused at a given scene, and the detection of such motion can cause the camera mechanism to pause an additional time at the given scene and to alert the operator. A microphone may detect motion noise of the pan and tilt and cause the viewed video to switch from camera to camera in response to the motion noise (**Abstract of Smith et al.**). Smith et al. disclose having a delay that allows time for the camera mechanism to stabilize after motion before switching the viewed video (**Column 9, Lines 11-28 of Smith et al.**). It would have been obvious and well-known to one of ordinary skill in the art at the time of the invention to enable the teachings of Shirakawa to select the image data from at least the first and second image data after motion in the selected image data stabilizes as taught by Smith et al., because this allows for the viewed image to be clear and undistorted.*

*With regard to **Claim 26**, Shirakawa and Smith et al. disclose the image capture method of claim 23, further comprising:*

*initiating presentation of the particular view on a display after performing the image processing operation (**Paragraphs 0047-0049 of Shirakawa**).*

*Regarding **Claim 29**, Shirakawa and Smith et al. disclose the image capture method of claim 23, further comprising:*

*outputting post processed image signal information (**Figures 8-9 of Shirakawa**).*

*In regard to **Claim 31**, Shirakawa and Smith et al. disclose the image capture method of claim 29, further comprising streaming the post processed image signal information (The portable telephone can send superimposed moving (streaming) images, **Paragraph 0028 of Shirakawa**).*

*Regarding **Claim 37**, Shirakawa and Smith et al. disclose the image capturing method of claim 23, wherein none of the plurality of digital image sensors includes a computer readable memory (**Figures 2 and 8 of Shirakawa** show no memory present in the digital image sensors).*

*Regarding **Claim 38**, Shirakawa and Smith et al. disclose the image capturing method of claim 23, wherein the plurality of digital image sensors are integrated within a single electronic device (**Figures 2 and 8-9 of Shirakawa**).*

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shirakawa (US Pub No.: 2003/0117501A1) in view of Smith et al. (US Patent No.: 5898459) as applied to claim 1 above and further in view of Glassman et al. (US Patent No.: 5920337)

*With regard to **Claim 2**, Shirakawa and Smith et al. disclose the image capture system of claim 1, further comprising a support having an exterior surface that comprises a mounting surface to mount the single electronic device as discussed above. However, Shirakawa and Smith et al. do not disclose that the support has a generally spherical geometry. Glassman et al. teach of multiple sensors on a mounting surface (60 which is fabricated on an IC in Figure 10 of Glassman et al.) that has a generally spherical geometry (Column 10, Line 63 to Column 11; Line 3 and Figure 10 of Glassman et al.). It would have been obvious and well-known to one of ordinary skill in the art to incorporate a spherical shaped mounting surface into the design disclosed by Shirakawa and Smith et al., because this enables the system to obtain a three hundred and sixty degree panoramic view of a scene to be imaged, **Column 2, Lines 58 to 59 of Glassman et al.***

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shirakawa (US Pub No.: 2003/0117501A1) in view of Smith et al. (US Patent No.: 5898459) as applied to claim 1 above and further in view of Webster (US Patent No.: 6791076B2).

*In regard to **Claim 4**, Shirakawa and Smith et al. do not explicitly disclose the image capture system of claim 1, wherein the first and second image sensor lens module are adjustable secured to a mounting surface. Webster discloses an image sensor package includes an image sensor, a window, and a molding, where the molding includes a lens holder extension portion extending upwards from the window. The lens holder extension portion includes a female threaded aperture extending from the window such that the window is exposed through the aperture. A lens is supported in a threaded lens support. The threaded lens support is threaded into the aperture of the lens holder extension portion. The lens is readily adjusted relative to the image sensor by rotating the lens support (**Abstract of Webster**). Webster discloses that the lens can be readily adjusted relative to the image sensor by rotating a lens support (Abstract of Webster). It would have been obvious and well-known to one of ordinary skill in the art at the time of the invention to have the lens' adjustably secured with the mounting surface, because this readily allows focusing of radiation on the active area of the image sensor, **Column 4, Lines 64 et seq. of Webster**.*

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shirakawa (US Pub No.: 2003/0117501A1) in view of Smith et al. (US Patent No.: 5898459) as applied to claim 1 of Adair et al. (US Patent No.: 7002621B2).

*In regard to **Claim 6**, Shirakawa and Smith et al. do not explicitly disclose the image capture system of claim 1, further comprising a microphone assembly*

Art Unit: 2622

*communicatively coupled to the shared image processing engine to provide audio input. Adair et al. disclose a reduced area imaging device is provided for use with a communication device, such as a wireless/cellular phone. Various configurations of the imaging device are provided which locate the elements of the imaging device at desired locations. The communication device includes a miniature LCD-type monitor which displays not only images taken by the camera module, but also incoming video messages. The camera module may communicate with the housing of the communication device by wired connection, or wirelessly. The camera module is of such small size that it can be stored within the housing of the communication device. The camera module may be pointed at any object within sight of the user, without having to move the phone housing in order to take video images. Any acceptable wireless standard may be used for wireless communication between the camera module and the video telephone. One particularly advantageous wireless standard includes Bluetooth (Abstract of Adair et al.). Adair et al. disclose the system having a microphone assembly (78) present and connected to a processing engine (72), **Figure 6; Column 10, Lines 16 et seq. of Adair et al.** It would have been obvious and well-known to one of ordinary skill in the art at the time of the invention to enable the system disclosed by Shirakawa to have a microphone present to capture audio along with the captured images as taught by Adair et al., because having audio to go along with a captured image helps reaches more of the senses present in a user.*

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shirakawa (US Pub No.: 2003/0117501A1) in view of Smith et al. (US Patent No.: 5898459) as applied to claim 11 above and further in view of Chen et al. (US Pub No.: 2004/0196379A1).

*In regard to **Claim 12**, Shirakawa and Smith et al. do not explicitly disclose the image capture system of claim 11, further comprising:*

*an interface operable to facilitate communication of a processing engine output to a device selected from: a computing device. Chen et al. disclose a compound camera system for generating an enhanced virtual image having a large depth-of-field. The compound camera system comprises a plurality of component cameras for generating image data of an object and a data processor for generating the enhanced virtual image from the image data. The data processor generates the enhanced virtual image by generating a first component virtual image at a first depth plane, generating a second component virtual image at a second depth plane, and inserting first selected pixels from the first component virtual image into enhanced the virtual image and inserting second selected pixels from the second component virtual image into the enhanced virtual image (**Abstract of Chen et al.**). Chen et al. disclose sending information from the processing found within the cameras (110) to a computer 130 (**Figure 1 and Paragraph 0031 of Chen et al.**). It would have been obvious and well-known to one of ordinary skill in the art at the time of the invention to enable the system disclosed by Shirakawa and Smith et al. to couple an output of the processing engine to an external*

computing system, because this way, processing can be performed external from the device and increase the speed and performance of the device.

Claims 18 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shirakawa (US Pub No.: 2003/0117501A1) in view of Smith et al. (US Patent No.: 5898459) as applied to claims 1 and 11 above and further in view of Pellkofer et al. (EMS-Vision: Gaze Control in Autonomous Vehicles)

*In regard to **Claim 18**, Shirakawa and Smith et al. disclose the image capture system of claim 11, wherein the first image module comprises a first lens and a first sensor, wherein the second image module comprises a second lens and a second sensor (**Figure 1 of Shirakawa**). However, Shirakawa and Smith et al. do not disclose that the first lens and the first sensor have a different focal length than the second lens and the second sensor. Pellkofer et al. disclose an approach to an optimal gaze control system for autonomous vehicles. This gaze control system should not only determine the viewing direction ad hoc for the present moment, but also plan and optimize the viewing behavior in advance for a certain period of time. For planning the viewing behavior the situation must be predicted. The expression, situation includes not only the physical situation, but also the so-called perspective situation and subjective situation (**Abstract of Pellkofer et al.**). Pellkofer et al. disclose four cameras with different focal lengths mounted on a pan-tilt camera head, (**Section 2.3, 3, Figure 1 of Pellkofer et al.**). It would have been obvious and well-known to one of ordinary skill in the art at the*

time of the invention to enable the lens' and sensors in the teachings of Shirakawa and Smith et al. to have different focal lengths as taught by Pellkofer et al., because this enables the objects to be perceived in different images by different perception abilities according to a users liking (Section 2.3 of Pellkofer et al.).

*In regard to **Claim 39**, Shirakawa and Smith et al. do not explicitly teach or disclose the image capture system of claim 1, wherein the first lens of the first image sensor lens module has a first depth of focus, and wherein the second lens of the second image sensor lens module has a second depth of focus different from the first depth of focus. Pellkofer et al. disclose an approach to an optimal gaze control system for autonomous vehicles. This gaze control system should not only determine the viewing direction ad hoc for the present moment, but also plan and optimize the viewing behavior in advance for a certain period of time. For planning the viewing behavior the situation must be predicted. The expression, situation includes not only the physical situation, but also the so-called perspective situation and subjective situation (**Abstract of Pellkofer et al.**). Pellkofer et al. disclose four cameras with different focal lengths (differing depths of focus) mounted on a pan-tilt camera head, (**Section 2.3, 3, Figure 1 of Pellkofer et al.**). It would have been obvious and well-known to one of ordinary skill in the art at the time of the invention to enable the lens' and sensors in the teachings of Shirakawa and Smith et al. to have different focal lengths as taught by Pellkofer et al., because this enables the objects to be perceived in different images by different perception abilities according to a users liking (**Section 2.3 of Pellkofer et al.**).*

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shirakawa (US Pub No.: 2003/0117501A1) in view of Smith et al. (US Patent No.: 5898459) as applied to claim 11 above and further in view of Bernhardt (US Pub No.: 2001/0022627A1)

*In regard to **Claim 19**, Shirakawa and Smith et al. do not explicitly disclose the image capture system of claim 11, wherein the first image module comprises a lens with autofocus. Bernhardt discloses a dome camera (14) with a housing (15) and a first dome (16) in which a video camera with a lens (18) is disposed which is adjustable about a vertical axis of rotation (A-A) and a horizontal swiveling axis (**Abstract of Bernhardt and Figure 1 of Bernhardt**). Bernhardt also teaches that lens 18 can be used for autofocus (**Paragraph 0052 of Bernhardt**). It would have been obvious and well-known to one of ordinary skill in the art at the time of the invention to enable the teachings of Shirakawa and Smith et al. to have a lens with autofocus as taught by Bernhardt, because it would have been obvious and well known at the time of the invention to have a lens that performed auto-focus since an auto-focus function would have saved the user the time and effort of manually focusing in on a scene to be imaged.*

Claims 8, 25 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shirakawa (US Pub No.: 2003/0117501A1) in view of Smith et al.

(US Patent No.: 5898459) as applied to claims 1 and 23 above and further in view of Monroe (US Patent No.: 7023913B1)

*In regard to **Claim 8**, Shirakawa and Smith et al. do not explicitly disclose the image capture system of claim 1, further comprising a triggering engine operable to signal the selector to route the second raw image data to the shared image processing engine in response to a determination that the second image sensor lens module is aimed toward particular scene activity. Monroe (US Patent No.: 7023913B1) teaches of a digital camera system with a plurality of cameras that is capable of collecting more than one image while performing surveillance and monitoring of an area, **Column 2, Lines 36-49; Figures 16 and 19 of Monroe**. Monroe discloses a MUX 13 that functions as a pixel selector. Inputs from multiple cameras monitoring an area are coupled through separate motion compressors 12a-12n. The MUX is responsive to select an individual camera signal from the image sensor selector (processor 15 is connected to a network that sends it signals to give to the cameras, **Column 14, Lines 63-64 of Monroe**) at the control input (52) to select the pixel streams from the image sensors 10a-10n that only correspond to the pixels that are located within the target area of the object being tracked, **Figures 16 and 19; Column 12, Lines 44-65; Column 13, Lines 13-28 of Monroe**. Pixels outside the view of the object being tracked are avoided as can be seen from **Figure 16 of Monroe**). Only the compressed pixels that fall within the target view are sent to the MUX 13 and then sent to the processor 15 for processing. Areas and pixels that are not concerned with the target being tracked will not be sent to*

*the processor, **Figures 16 and 19; Column 12, Lines 44-65; Column 13, Lines 13-28 of Monroe***. It would have been obvious and well-known to one of ordinary skill in the art at the time of the invention to incorporate the function of selecting individual pixels of the first and second image modules and enabling them to be randomly accessible by the processing engine as disclosed Monroe into the teachings of Shirakawa and Smith et al., because this significantly reduces the amount of visual data to only the data that's important while preserving quality and increasing processing speed, **Column 3, Lines 12-17 and Lines 57-65 of Monroe**.

*Regarding **Claim 25**, Shirakawa and Smith et al. do not explicitly teach or disclose the image capturing method of claim 23, further comprising performing the image processing operation on the first image information until a desired portion of a scene is not in view of the first digital image sensor, then ceasing to perform the image processing operation on the first image information and performing the image processing operation of the second image information.*

*Monroe (US Patent No.: 7023913B1) teaches of a digital camera system with a plurality of cameras that is capable of collecting more than one image while performing surveillance and monitoring of an area, **Column 2, Lines 36-49; Figures 16 and 19 of Monroe**. Monroe discloses a MUX 13 that functions as a pixel selector. Inputs from multiple cameras monitoring an area are coupled through separate motion compressors 12a-12n. The MUX is responsive to select an individual camera signal from the image sensor selector (processor 15 is connected to a network that sends it signals to give to*

Art Unit: 2622

*the cameras, **Column 14, Lines 63-64 of Monroe**) at the control input (52) to select the pixel streams from the image sensors 10a-10n that only correspond to the pixels that are located within the target area of the object being tracked, **Figures 16 and 19; Column 12, Lines 44-65; Column 13, Lines 13-28 of Monroe**. Pixels outside the view of the object being tracked are avoided as can be seen from **Figure 16 of Monroe**). Only the compressed pixels that fall within the target view (selected camera) are sent to the MUX 13 and then sent to the processor 15 for processing. Areas and pixels that are not concerned with the target being tracked will not be sent to the processor, **Figures 16 and 19; Column 12, Lines 44-65; Column 13, Lines 13-28 of Monroe**). It would have been obvious and well-known to one of ordinary skill in the art at the time of the invention to incorporate the function of selecting individual pixels of the first and second image modules and enabling them to be randomly accessible by the processing engine as disclosed Monroe into the teachings of Shirakawa and Smith et al., because this significantly reduces the amount of visual data to only the data that's important while preserving quality and increasing processing speed, **Column 3, Lines 12-17 and Lines 57-65 of Monroe**.*

*With regard to **Claim 28**, Shirakawa and Smith et al. disclose having a delay that allows time for the camera mechanism to stabilize after motion before switching the viewed video (**Column 9, Lines 11-28 of Smith et al.**).*

However, Shirakawa and Smith et al. do not explicitly disclose the image capture method of claim 23, further comprising:

when the image processing operation is being performed on the second image information, receiving a directional identification signal indicating activity at a location associated with the first view; and in response to the directional identification signal, ceasing to perform the image processing operation on the second image information, and performing the image processing operation on the first image information.

*Monroe (US Patent No.: 7023913B1) teaches of a digital camera system with a plurality of cameras that is capable of collecting more than one image while performing surveillance and monitoring of an area, **Column 2, Lines 36-49; Figures 16 and 19 of Monroe**. Monroe also teaches receiving a directional identification signal indicating that the first view contains a desired scene activity (**Column 12, Lines 44-65 and Column 13, Lines 13-28 of Monroe**). If the activity was detected in the region of the second camera, the camera would focus its attention in the region of the second camera. However, when the activity is shifted into the area of the first camera (first image information), the second camera will no longer be necessary in tracking the object especially if it is out of its field of view. It would have been obvious and well-known to one of ordinary skill in the art at the time of the invention to correlate the first view to a first image sensor of the plurality of image sensors and the second view to a second image sensor of the plurality of image sensors; and receiving a directional identification signal indicating that the first view contains a desired scene activity as disclosed by Monroe, because this lets a viewer clearly observe an object from afar while alerting the*

viewer of the direction of an activity so the viewer can take necessary action during a surveillance operation.

Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shirakawa (US Pub No.: 2003/0117501A1) in view of Smith et al. (US Patent No.: 5898459) and in view of Pellkofer et al. (EMS-Vision: Gaze Control in Autonomous Vehicles) as applied to claims 1 and 39 above and further in view of Monroe (US Patent No.: 7023913B1).

*With regard to **Claim 40**, Shirakawa, Smith et al. and Pellkofer et al. do not explicitly disclose the image capture system of claim 39, further comprising a triggering engine integrated into the single electronic device, wherein the triggering engine is operable to evaluate scene view information to identify which of the first raw image data and the second raw image data comprises desired information. Monroe (US Patent No.: 7023913B1) teaches of a digital camera system with a plurality of cameras that is capable of collecting more than one image while performing surveillance and monitoring of an area, **Column 2, Lines 36-49; Figures 16 and 19 of Monroe**. Monroe discloses a MUX 13 that functions as a pixel selector. Inputs from multiple cameras monitoring an area are coupled through separate motion compressors 12a-12n. The MUX is responsive to select an individual camera signal from the image sensor selector (processor 15 is connected to a network that sends it signals to give to the cameras, **Column 14, Lines 63-64 of Monroe**) at the control input (52) to select the pixel streams*

Art Unit: 2622

*from the image sensors 10a-10n that only correspond to the pixels that are located within the target area of the object being tracked, **Figures 16 and 19; Column 12, Lines 44-65; Column 13, Lines 13-28 of Monroe.** Pixels outside the view of the object being tracked are avoided as can be seen from **Figure 16 of Monroe**). Only the compressed pixels that fall within the target view are sent to the MUX 13 and then sent to the processor 15 for processing. Areas and pixels that are not concerned with the target being tracked will not be sent to the processor, **Figures 16 and 19; Column 12, Lines 44-65; Column 13, Lines 13-28 of Monroe**). It would have been obvious and well-known to one of ordinary skill in the art at the time of the invention to incorporate the function of selecting individual pixels of the first and second image modules and enabling them to be randomly accessible by the processing engine as disclosed Monroe into the teachings of Shirakawa, Smith et al. and Pellkofer et al., because this significantly reduces the amount of visual data to only the data that's important while preserving quality and increasing processing speed, **Column 3, Lines 12-17 and Lines 57-65 of Monroe.***

Claims 17 and 41-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shirakawa (US Pub No.: 2003/0117501A1) in view of Smith et al. (US Patent No.: 5898459) as applied to claims 1 and 11 above and further in view of Foote et al. (US Patent No.: 7015954B1).

*In regard to **Claim 17**, Shirakawa and Smith et al. disclose multiple cameras (Figure 2 of Shirakawa) that have different views (Figures 2 and 8-9 of Shirakawa).*

Art Unit: 2622

*However, Shirakawa and Smith et al. do not explicitly disclose the image capture system of claim 11, wherein the first image module has a resolution and the second module has a different resolution. Foote et al. disclose two different cameras (Ch1 and Ch2 from Figure 10 of Foote et al.). Before merging the images from Ch1 and Ch2, it is taught that the regions from Ch1 corresponding to the regions in Ch2 differ in resolution (the regions are darker in Ch1), **Column 11, Lines 41-47 of Foote et al.** It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate having one sensor differ in resolution when compared to the other sensor as taught by Foote et al. into the teachings of Shirakawa and Smith et al., because each sensor captures a different scene of view and the light falling on each portion of the scene of view could vary.*

*In regard to **Claim 41**, Shirakawa and Smith et al. do not explicitly disclose the image capture system of claim 1, wherein the shared image processing engine and the selector replicate a pan, tilt and zoom operation by selectively causing only one of the first raw image data and the second raw image data to be transformed into the viewable image. Foote et al. disclose panning, tilting and zooming of an array of cameras, **Column 1, Lines 19-20 and 55-62 of Foote et al.** It would have been obvious and well-known to one of ordinary skill in the art at the time of the invention to enable the multiple cameras disclosed by Shirakawa and Smith et al. to be capable of panning, tilting and zooming in on desired information (be it information from the first or second*

cameras disclosed by Shirakawa), because this increases the field of view of the cameras while enabling the area of interest to be more visible to a user.

*With regard to **Claim 42**, Shirakawa and Smith et al. do not explicitly disclose the image capture system of claim 1, wherein the shared image processing engine performs a digital magnification by interpolating between pixels in a center of the selected one of the first raw image data and the second raw image data routed to the shared image processing engine. Foote et al. disclose that digital zooming of a scene is possible with an array of cameras, **Column 1, Lines 26-30 of Foote et al.** It would have been obvious and well-known to one of ordinary skill in the art at the time of the invention to incorporate digital zooming taught by Foote et al. into the teachings disclosed by Shirakawa and Smith et al., because digital zooming increases the size of the image to be captured and renders the image easier to view.*

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shirakawa (US Pub No.: 2003/0117501A1) in view of Smith et al. (US Patent No.: 5898459) and Monroe (US Patent No.: 7023913B1) as applied to claims 1 and 8 above and further in view of Glassman et al. (US Patent No.: 5920337) and Park (US Pub No.: 2004/0085445A1).

*In regard to **Claim 9**, Shirakawa, Smith et al. and Monroe do not teach or explicitly disclose the image capture system of claim 8, further comprising: a support*

Art Unit: 2622

having an exterior surface that comprises a mounting surface to mount the single electronic device, the support having a geometry that facilitates differing orientations of the first and the second image sensor lens modules; and an interface operable to communicatively couple an output of the shared image processing engine to an external computing system, wherein the output is encrypted before the output is sent to the external computing system.

*Glassman et al. teach of multiple sensors on a mounting surface (60 which is fabricated on an IC in Figure 10 of Glassman et al.) that has a generally spherical geometry (Column 10, Line 63 to Column 11; Line 3 and Figure 10 of Glassman et al.). The system has a support having an exterior surface that comprises the mounting surface, the support having a geometry that facilitates differing orientations of the first and the second image sensor lens modules (Figure 10 of Glassman et al. show that the support has a geometry that facilitates differing orientations of the image sensor modules); and an interface operable to communicatively couple an output of the processing engine to an external computing system (Processed images can be sent to a computer, **Column 4, Lines 62-63 of Glassman et al.**).*

*It would have been obvious and well-known to one of ordinary skill in the art to incorporate a spherical shaped mounting surface into the design disclosed by Shirakawa and Monroe, because this enables the system to obtain a three hundred and sixty degree panoramic view of a scene to be imaged, **Column 2, Lines 58 to 59 of Glassman et al.** It would have further been obvious to couple an output of the*

Art Unit: 2622

processing engine to an external computing system, because this would have enabled the freeing up of space in the camera and increasing its present memory capacity.

*Shirakawa, Smith et al., Monroe and Glassman et al. do not disclose an interface operable to communicatively couple an output of the shared image processing engine to an external computing system, wherein the output is encrypted before the output is sent to the external computing system. Park discloses a video security system and a method for operating the system. The video security system includes a video camera including circuits for use encrypting data or inserting a security signal, thereby generating a secured video signal for transmission. The system further includes a receiving unit, which is configured to receive the transmitted secured video signal. The receiving unit includes circuits to decrypt any encrypted signals and/or to manipulate security signal to confirm that there is no hacking or interception during the transmission. The method for operation of the security system includes providing a usable video signal and processing the usable video signal to provide a secured video signal. The usable video signal is a video image signal for use in a display with substantially little or no signal processing. The secured video signal includes at least one of an encrypted signal and a security signal. The method further includes processing secured video signal for displaying the video image conveyed in the secured video signal (**Abstract of Park**). Park discloses outputting encrypted video data from a camera 100 to an external computing device 300 where the data is decrypted, **Figures 1-2 and Paragraph 0076 of Park**. It would have been obvious and well-known to one of ordinary skill in the art a*

Art Unit: 2622

the time of the invention to enable the teachings of Shirakawa, Smith et al., Monroe and Glassman et al. to couple an output of the processing engine of the camera to an external computing system, because this way, processing can be performed external from the device and increase the speed and performance of the device (camera). It would have also been obvious to one of ordinary skill in the art at the time of the invention to encrypt the output before sending it to an external device as taught by Park, because this protects the confidentiality of the output in the event the data is used for security/surveillance purposes.

Claim 43 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shirakawa (US Pub No.: 2003/0117501A1) in view of Smith et al. (US Patent No.: 5898459) as applied to claim 11 above and further in view of Pellkofer et al. (EMS-Vision: Gaze Control in Autonomous Vehicles) and Chen et al. (US Patent No.: 7425984).

*In regard to **Claim 43**, Shirakawa and Smith et al. do not explicitly disclose the image capturing system of claim 11, wherein the first image module has a first depth of focus, wherein the second image module has a second depth of focus, and wherein the first image module and the second image module are integrated on a single integrated circuit with the processing engine. Pellkofer et al. disclose an approach to an optimal gaze control system for autonomous vehicles. This gaze control system should not only determine the viewing direction ad hoc for the present moment, but also plan and*

Art Unit: 2622

optimize the viewing behavior in advance for a certain period of time. For planning the viewing behavior the situation must be predicted. The expression, situation includes not only the physical situation, but also the so-called perspective situation and subjective situation (Abstract of Pellkofer et al.). Pellkofer et al. disclose four cameras with different focal lengths (differing depths of focus) mounted on a pan-tilt camera head, (Section 2.3, 3, Figure 1 of Pellkofer et al.). It would have been obvious and well-known to one of ordinary skill in the art at the time of the invention to enable the lens' and sensors in the teachings of Shirakawa and Smith et al. to have different focal lengths as taught by Pellkofer et al., because this enables the objects to be perceived in different images by different perception abilities according to a users liking (Section 2.3 of Pellkofer et al.).

Chen et al. disclose a compound camera system comprising component cameras that generate image data of an object and a processor that receives first image data from a first component camera and second image data from a second component camera and generates a virtual image. The processor projects virtual pixel data (u,v) to generate point data (x,y,z) located at depth, $z=Z1$, of a object plane of the object and projects the said point data (x,y,z) to generate first pixel data $(u.sub.1,v.sub.1)$ located at a image plane of the first image. The processor also projects said point data (x,y,z) located at the depth, $z=Z1$, of the said object plane to generate second pixel data $(u.sub.2,v.sub.2)$ located at the second image. The processor generates the virtual image by combining the color of first pixel data $(u.sub.1,v.sub.1)$ and the color of second pixel data $(u.sub.2,v.sub.2)$. Chen et al. teach that image modules along with the

*processing engine 270 are formed on an integrated circuit chip 299, **Figure 2 and Column 5, Lines 3-20 of Chen et al.** It would have been obvious and well-known to one of ordinary skill in the art at the time of the invention to enable the first and second image modules along with the processor to be incorporated onto an integrated circuit as taught by Chen et al., because this is a well-known way of saving physical space on the device; making the system compact.*

Claim 47 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shirakawa (US Pub No.: 2003/0117501A1) in view of Smith et al. (US Patent No.: 5898459) as applied to claim 23 above and further in view of Park (US Pub No.: 2004/0085445A1).

*In regard to **Claim 47**, Shirakawa and Smith et al. do not explicitly teach or disclose the method of claim 23, further comprising encrypting output of the image processing operation and sending the encrypted output to a remote computing system. Park discloses a video security system and a method for operating the system. The video security system includes a video camera including circuits for use encrypting data or inserting a security signal, thereby generating a secured video signal for transmission. The system further includes a receiving unit, which is configured to receive the transmitted secured video signal. The receiving unit includes circuits to decrypt any encrypted signals and/or to manipulate security signal to confirm that there is no hacking or interception during the transmission. The method for operation of the*

Art Unit: 2622

*security system includes providing a usable video signal and processing the usable video signal to provide a secured video signal. The usable video signal is a video image signal for use in a display with substantially little or no signal processing. The secured video signal includes at least one of an encrypted signal and a security signal. The method further includes processing secured video signal for displaying the video image conveyed in the secured video signal (**Abstract of Park**). Park discloses outputting encrypted video data from a camera 100 to an external computing device 300 where the data is decrypted, **Figures 1-2 and Paragraph 0076 of Park**. It would have been obvious and well-known to one of ordinary skill in the art at the time of the invention to enable the teachings of Shirakawa and Smith et al. to couple an output of the processing engine of the camera to an external computing system, because this way, processing can be performed external from the device and increase the speed and performance of the device (camera). It would have also been obvious to one of ordinary skill in the art at the time of the invention to encrypt the output before sending it to an external device as taught by Park, because this protects the confidentiality of the output in the event the data is used for security/surveillance purposes.*

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PRITHAM PRABHAKHER whose telephone number is (571)270-1128. The examiner can normally be reached on M-F (7:30-5:00) Alt Friday's Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571)272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2622

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Pritham David Prabhakher
Patent Examiner
Pritham.Prabhakher@uspto.gov
/Pritham Prabhakher/
Examiner, Art Unit 2622

/Jason Chan/

Supervisory Patent Examiner, Art Unit 2622